

**RESEALABLE MULTI-PLY LABEL**  
**BACKGROUND OF THE INVENTION**

**I. Field of the Invention**

The present invention relates generally to the field of labeling and, in particular, the present invention provides a multi-ply resealable label construction that does not require a pressure sensitive adhesive hinge.

**II. Related Art**

Multi-ply labels, variously referred to as "multi-layered" "extended text," or "expanded content" labels, are useful for consumer products, particularly those sold in bottles, cans and cartons, where it is desirable to present additional information to the consumer which cannot conveniently be contained on a single printed label surface. Particularly in view of the increasing amount of governmental regulation and labeling requirements, many consumer products contained in such packaging must carry additional information including detailed instructions for use, detailed listings of the contents, a variety of consumer product warnings, and provisions for multi-lingual information. This has led to the provision of multi-ply labels carrying text on a plurality of surfaces. Such labels normally contain two or more layers or plies of label material hinged together using a pressure sensitive adhesive along one margin and utilizing a pressure sensitive reseal system along the opposite margin. For example, Hill et al in U.S. Patent 5,149,587 and Coward et al in U.S. Patent 5,904,973 show label constructions of this type.

These labels normally are constructed utilizing a pair of label layers or plies with pressure sensitive adhesive therebetween to provide a hinge along one edge.

The pressure sensitive adhesive, however, remains tacky and subject to being pulled apart by users of the label. Furthermore, pressure sensitive adhesive hinges are often compromised by environmental conditions (e.g., mechanical forces, humidity, temperature fluxuations, and age). This is particularly true if the hinge is a narrow strip. This has led to the use of rather wide hinge strips between label layers which reduces the available text area on inner surfaces.

Thus, it would present a distinct advantage if the pressure sensitive adhesive hinge could be replaced by a hinge in which the plies were joined at one margin in a manner which was permanent, less likely to be pulled apart, and not dependent upon the hinge width for its security. Of course, a smaller hinge also restores available copy area to the label plies.

#### SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a resealable multi-ply label that includes a first or base ply having an under side and an upper side and an amount of a pressure sensitive adhesive on the under side to attach the label to an object of interest to be labeled. A second or upper ply is provided having an upper side and an under side and the upper side of the base ply and the under side of the upper ply are joined together permanently along a first or hinge edge or other hinge strip by an amount of a permanent adhesive material which is not pressure sensitive and which thereby forms a permanent hinge. Additional plies may be attached beneath the upper ply using a portion of the hinge strip.

The upper side of the base ply and the under side of the upper ply are also releasably, resealably, joined along an opposite or second edge or along an outer

release-reseal margin opposite the hinge or at one or more release-reseal strips spaced from a central hinge strip (depending on the label configuration). A dual layer release-reseal system is used which includes a layer of pressure sensitive adhesive and an abutting layer (top/bottom) of a release material such that the plies can be separated and resealed at a juncture therebetween.

The permanent adhesive material of the hinge is preferably selected from adhesives including hot melt adhesives, solvent-based adhesives, water-based adhesives, and UV- (ultraviolet) and EB- (electron beam) curable adhesives. Herein, "permanent adhesive" may be defined to include any glues, non-pressure sensitive adhesive materials including but not limited to heat seal adhesives, and multiple part epoxies, chemical welding or bonding, and mechanical fastening means, that all achieve a desired result of securely bonding two plies together.

It is to be particularly appreciated that a "permanent adhesive" is one that is tack-free in the cured or final adhesive state, in bonding plies together. Examples of preferred materials include UV-curable adhesives such as those available from RAD-CURE Corporation of Fairfield, New Jersey, including RAD-CURE 10PSLVA,B.

Preference of one such adhesive over another particularly will depend upon a drying or curing system of a given label manufacturing press, along with materials composition and compatibility considerations. In the dual layer reseal system, abutting layers may be applied to the plies in either order, either separately, or together as a combination on one of the plies. Thus, the pressure sensitive adhesive may be applied to the upper side of the base ply or to the under side of the

upper ply and the release material may be applied on the whole of the opposite facing surface exclusive of the hinge area or a lesser area down to just as much of that surface as is covered by the pressure sensitive adhesive. The pressure sensitive adhesive also may be applied in an intermittent pattern along the opposite edge and also along the remaining opposed side edges, or in any other pattern if desired.

The release material may be a varnish, lacquer, or any other material (whether a coating or otherwise) which accomplishes the effect of a release medium and allows the pressure sensitive adhesive to adhere to it only lightly so that it may be peeled back and resealed. Additional label layers or plies may be added as required.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings wherein like numerals are utilized to designate like parts throughout the same:

Figure 1a depicts a top view of a resealable, multi-ply label in accordance with the invention with an upper ply shown partially peeled back;

Figure 1b depicts a view similar to that of Figure 1a showing a modified embodiment;

Figures 2a and 2b depict cross-sectional views of alternate embodiments representative of either of the embodiments of Figures 1a and 1b; and

Figure 2c is a view of an embodiment similar to that shown in Figure 2b with an additional middle label ply.

Figures 3a and 3b depict yet another embodiment of a multi-ply label in accordance with the invention.

#### DETAILED DESCRIPTION

The detailed description contained herein in conjunction with the drawing figures presented is

intended by way of example with respect to the inventive concept and not intended to be limiting in any way. With this in mind, Figures 1a and 1b show top views of a resealable, multi-ply label 10 having a first or base ply 12 having an upper side 14 and an under side 16 (Figures 2a-2c). Label 10 includes an upper or top ply 18 having an under side 20 and an upper side 22.

The plies 12 and 18 may be made of any suitable material that meets the physical and chemical compatibility requirements, along with desired aesthetic attributes and cost considerations, of a particular label. It is to be understood that where necessary, surfaces of the plies to be printed may receive one or more additional depositions of material to adjust the receptiveness to printing materials. Thus, an array of papers, plastics, and related materials may variously be employed for the plies, the surfaces of which may be adjusted as needed by those skilled in the art.

As best seen in Figures 2a-2c, the upper or top ply 18 is joined to the first or base ply 12 along a strip that is normally a hinge margin or edge 23 using a permanent adhesive material 24 to form a binding or hinge. The adhesive material 24 is designed to cause permanent adhesions so that the upper or top ply 18 resists unintentional peeling away and removal from label 10 as is the case with non-permanent or pressure sensitive adhesives often used in the hinged construction of such multi-ply labels. It is particularly to be noted that a consumer may, inadvertently, attempt to peel back or open a multi-ply label at an incorrect location. The permanent adhesive hinge will prevent an inadvertent splitting of the plies at the hinge.

As seen in Figures 1a-b and 2a-c, a portion of the

upper side 14 of the first or base ply 12 is provided with a layer of release material 26 which may cover the entire area of the upper side 14 exclusive of regions having hinge adhesive material 24 as shown in Figure 2a or some lesser amount as shown in Figures 2b and 2c. As used herein, 'layer' is intended to include any material applied by an suitable deposition technique such as coating, laminating, layering, and the like. The layer of release material 26 is typically a varnish, lacquer, ink, or other material that promotes high tack and low peel characteristics of the pressure sensitive adhesive.

A layer of pressure sensitive adhesive is shown at 28 in Figures 2a-2c. This material in conjunction with the release material 26 enables release and resealing of the upper ply 18, and may be characterized, in combination, as a "release-reseal system". A pattern of the pressure sensitive adhesive material in the release-reseal system may be continuous, or a discontinuous or intermittent pattern, it only being necessary that the pattern of the pressure sensitive adhesive be substantially aligned with the release material when the plies are sealed and that it provide sufficient tack to prevent unaided or unintentional opening of the label as may occur, for example, in a product labeling assembly line or on a retail shelf.

Figure 2c depicts an alternate construction that adds a third or middle ply 30 between base ply 12 and upper or top ply 18. Middle ply 30 is also permanently hinged by the hinge adhesive material 24 along one edge at 32 and has free sides and a free end 34. End 34 terminates before reaching the pressure sensitive adhesive 28 of the release-reseal system so that it is captured within the label 10 when the top ply 18 is held

closed by the release-reseal system.

As can be seen in the Figures 2b and 2c, the release-reseal system may be preferably limited to a vicinity of a second edge as at 36 which is opposite the hinge margin or hinge edge or strip 23. Of course, the release-reseal system requires only that the release material 26 be substantially aligned with the pressure sensitive adhesive 28 on the opposed surface of the adjacent ply.

As seen in Figures 1a and 1b, however, the pressure sensitive adhesive may be attached to the lower or base ply in an intermittent pattern along an edge as at 40 and along the two edges of remaining sides as at 42.

Figures 3a and 3b depict another embodiment which employs a center hinge of a permanent adhesive fixing, a central strip of an upper or top ply 52 to a central strip of lower or bottom ply 54 creating opposed leaves 56 and 58 which are releasably, resealably closed by systems similar to the previously described release-reseal systems. This enables, among other things, copy to be fully displayed in two languages, separate from each other.

Any of the labels may be provided, if desired, with an additional layer of adhesive 29 on the under or lower side of the base ply 12, 54 to attach the label to an object of interest to be labeled such as, for example, a bottle of a medicinal preparation or other health or beauty aid product. The label may be stored conveniently on a release paper (not shown) to protect the attachment surface.

This invention has been described herein in considerable detail in order to comply with the patent statutes and to provide those skilled in the art with the

information needed to apply the novel principles and to  
construct and use such specialized components as are  
required. However, it is to be understood that the  
invention can be carried out by specifically different  
5 equipment and devices, and that various modifications,  
both as to the equipment and operating procedures, can be  
accomplished without departing from the scope of the  
invention itself.

What is claimed is:

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